



## **NORTH CAROLINA**

Department of Transportation



# Operations Committee Meeting

North Carolina Turnpike Authority

July 13, 2017



## **NORTH CAROLINA**

Department of Transportation



# Express Lanes Toll Rate Policy

Spencer Franklin, P. E.



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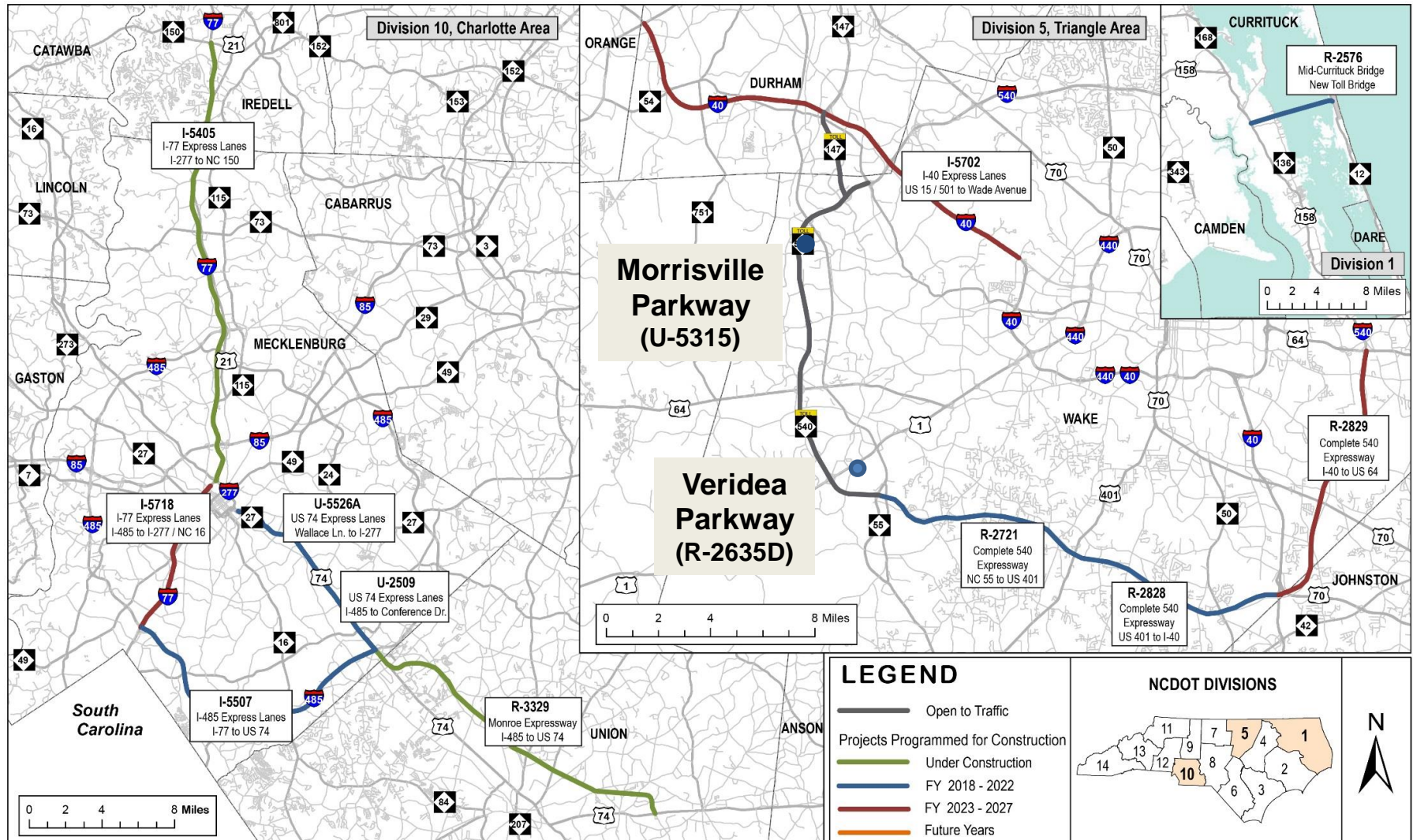


# Turnpike Project Development Overview

Jennifer Harris, P.E.



# Turnpike Projects



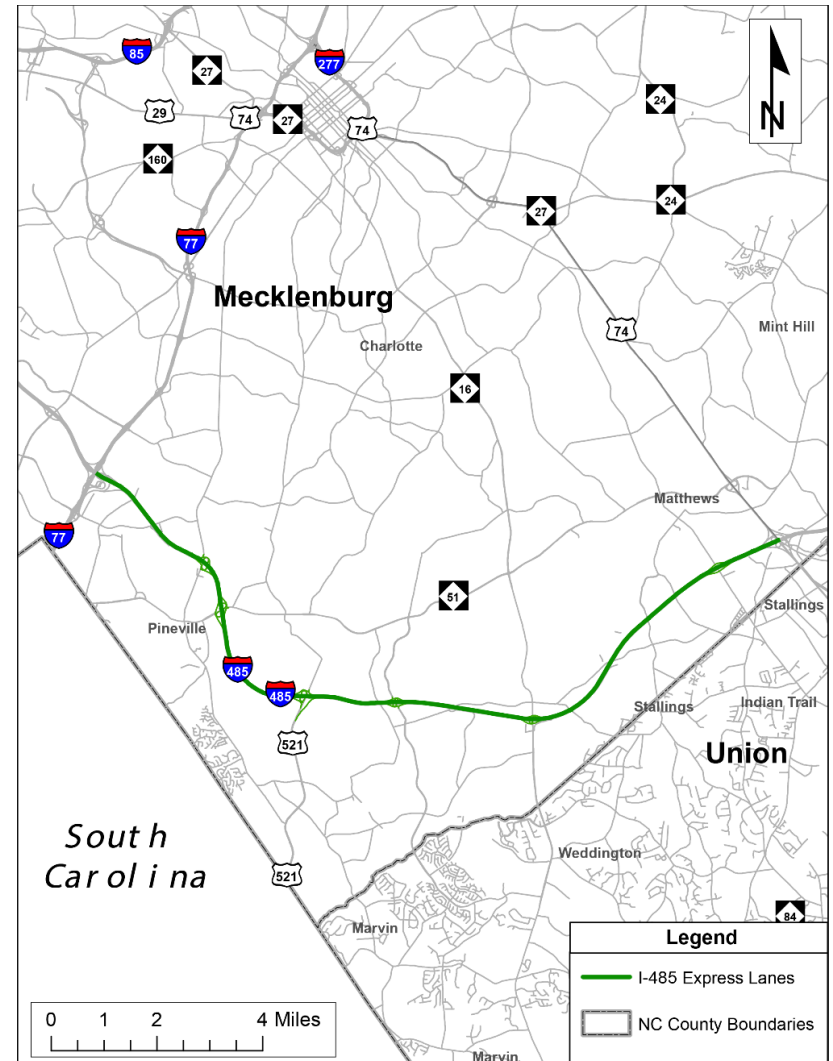
# I-485 Express Lanes

## Project Data

- I-5507
- 16.7 mi new capacity
- I-77 to US 74

## Milestones

- Shortlist - 1/11/17
- RFP Release - Pending
- Environmental Document (Summer 2017)
- ROW Acquisition (FY 2018)
- Construction (FY 2018)



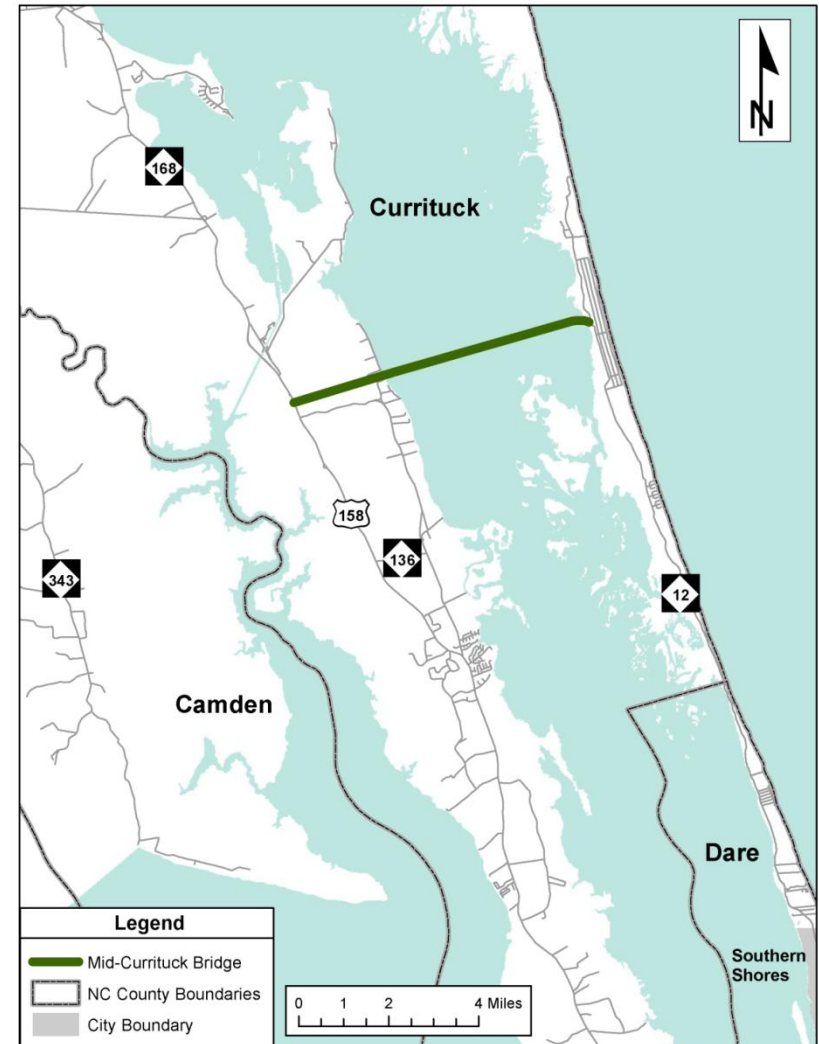
# Mid-Currituck Bridge

## Project Data

- R-2576
- 7.3<sup>mi</sup> of new location
- Spans Currituck Sound connecting the Currituck County mainland with the Outer Banks

## Milestones

- Complete financial feasibility study (2017)
- ROW Acquisition (FY 2018)
- Construction (FY 2018)





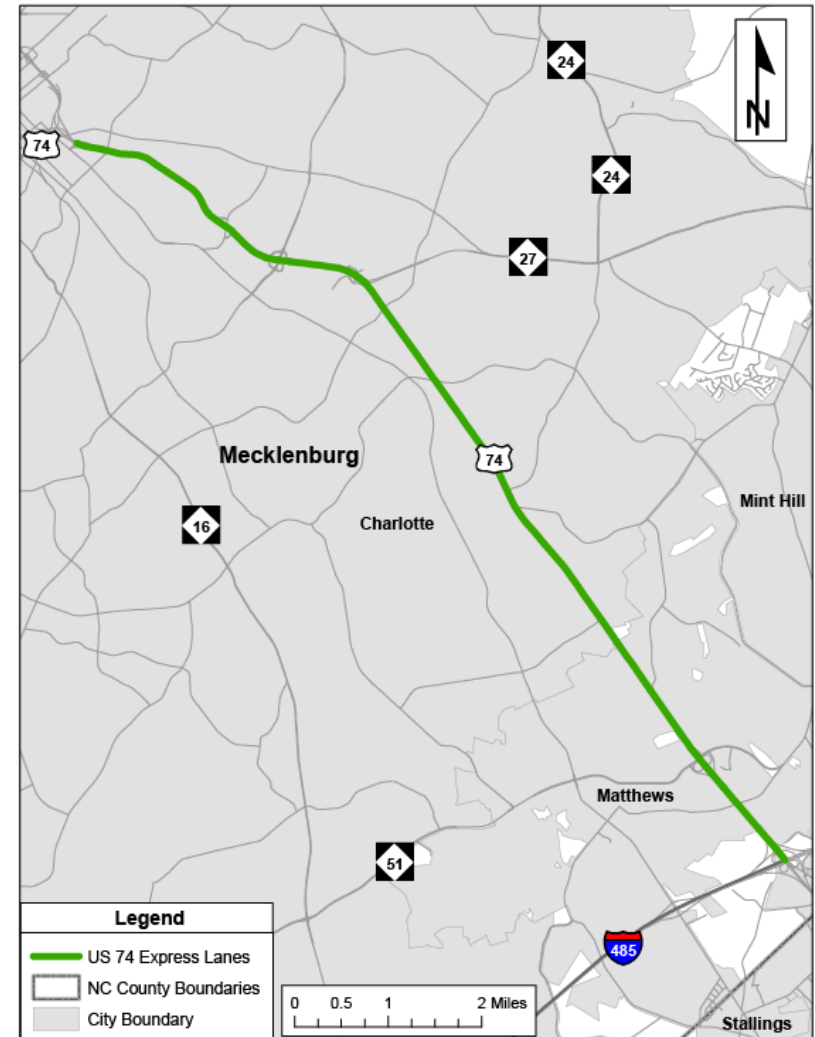
# US 74 Express Lanes

## Project Data

- Phase I:
  - U-5526A
  - 5.8 mi
  - I-277 to Wallace Lane
- Phase II:
  - U-2509
  - 6.3 mi
  - Conference Drive to I-485

## Milestones

- Phase I:
  - ROW (FY 2017)
  - Construction (FY 2018)
- Phase II:
  - Environmental assessment (FY 2018)
  - FONSI (FY 2019)
  - ROW & Construction (FY 2020)



# Complete 540

## Project Data

### **R-2721**

- 7.8 mi new location
- NC 55 to US 401

### **R-2828**

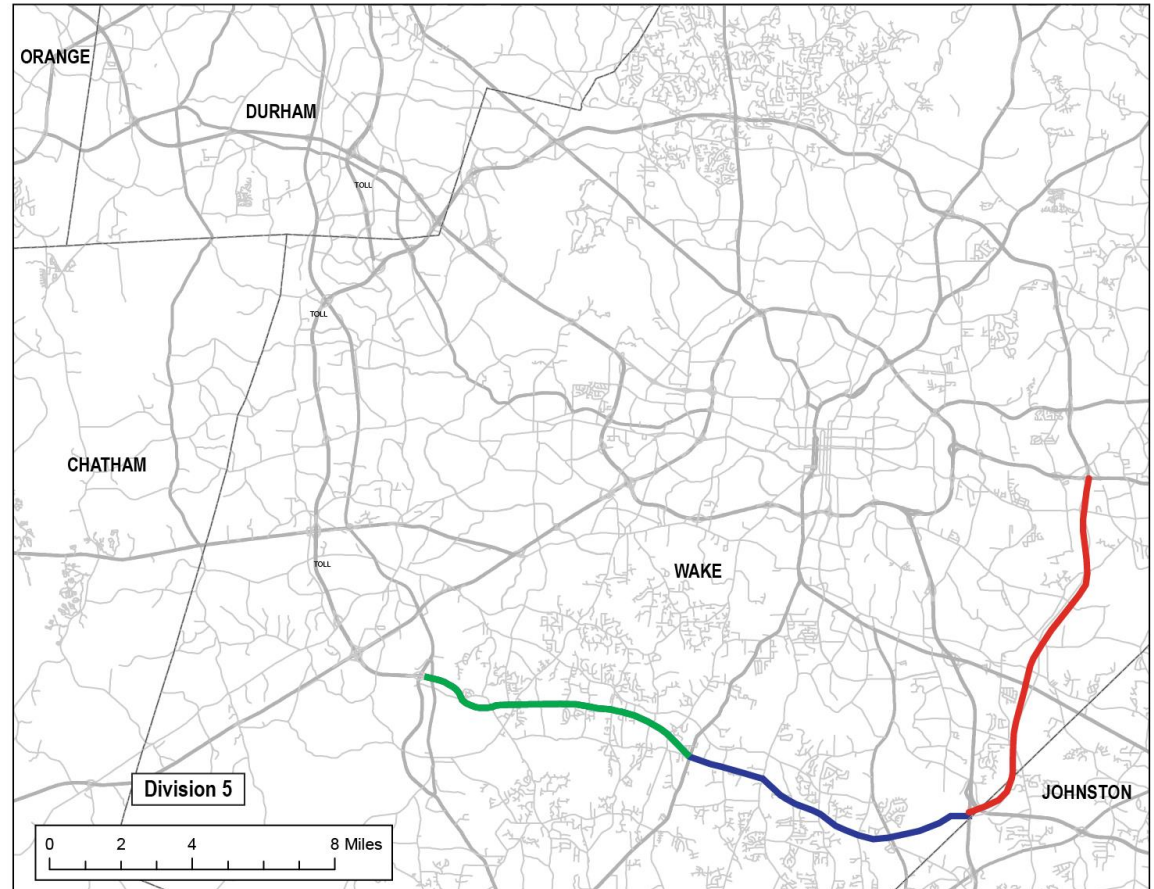
- 8.7 mi new location
- US 401 to I-40

### **R-2829**

- 10.8 mi new location
- I-40 to US 64/US 264 Bypass

## Milestones

- Final EIS - submit late 2017
- Record Of Decision - submit mid-2018
- ROW & Construction (R-2721 & R2828) - FY 2020
- ROW & Construction (R-2829) - FY 2027





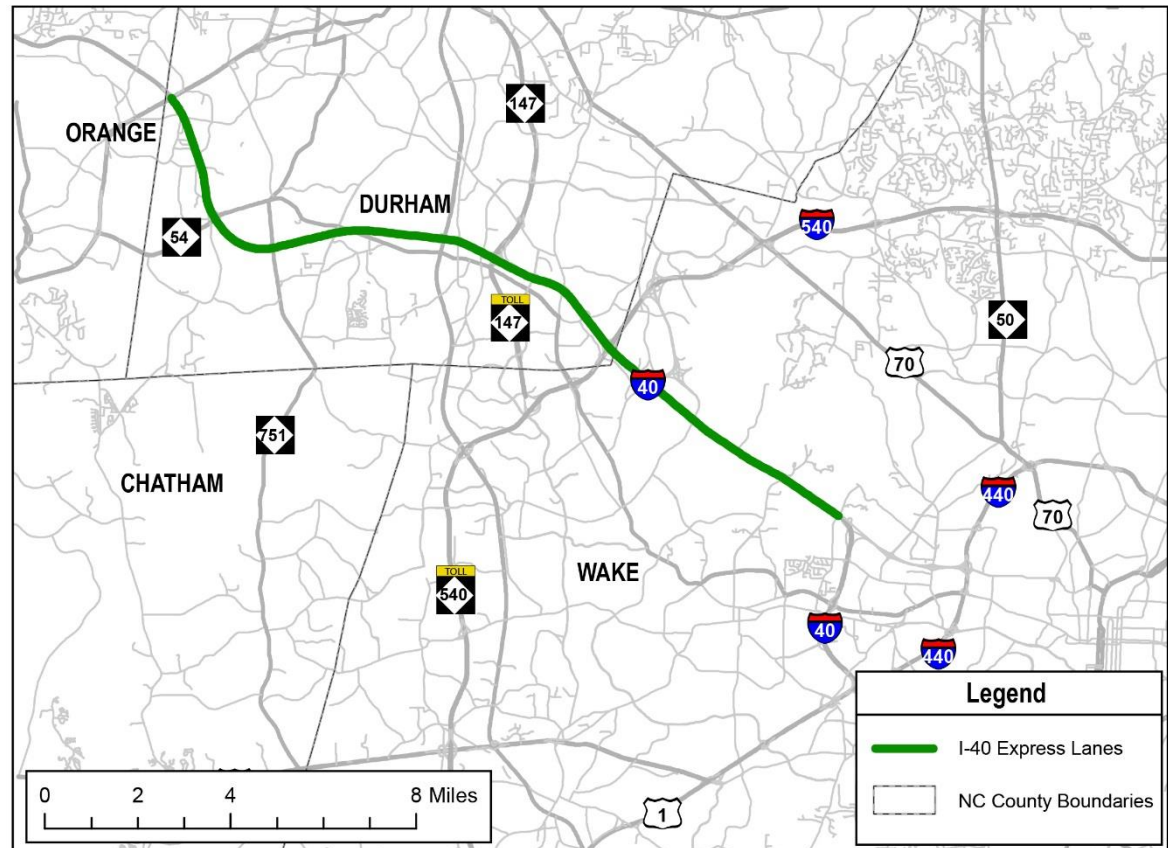
# I-40 Express Lanes

## Project Data

- I-5702
- 18.6 mi new capacity
- US 15/501 to Wade Avenue; 2 of 3 segments (A & B) extend to NC 147

## Milestones

- Right of Way (FY 2026)
- Construction (FY 2026)



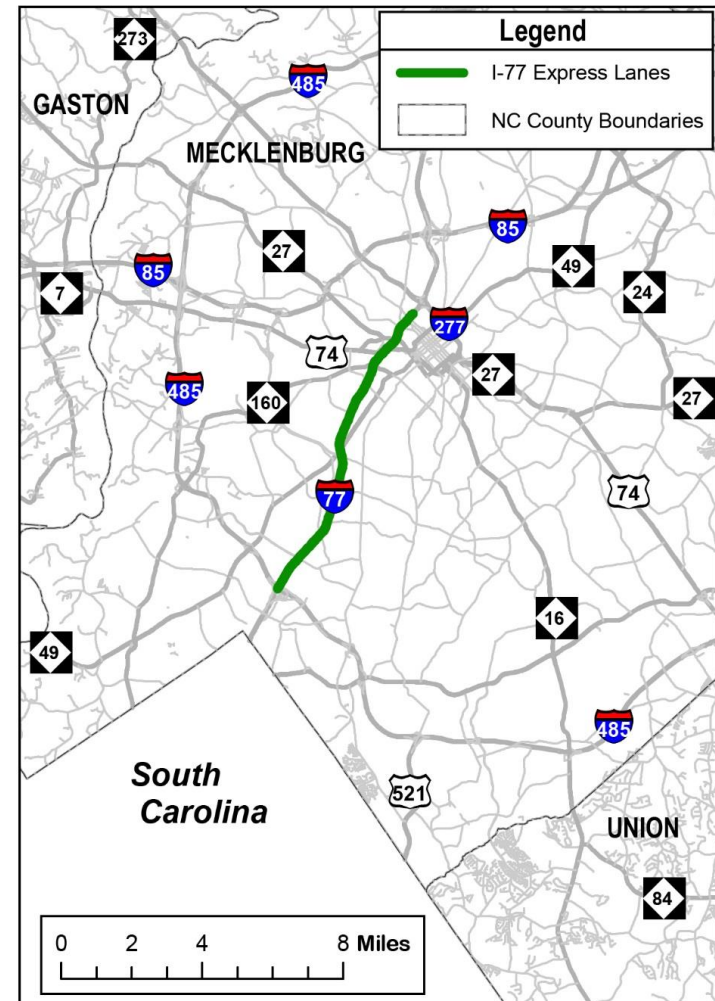
# I-77 Express Lanes

## Project Data

- I-5718
- 9.6 mi new capacity
- I-485 to I-277/NC 16; 3 of 5 segments (A, B & E)

## Milestones

- Right of Way (2024)
- Construction (2027)





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# Wrong-Way Driver Detection and Notification Program

Andy Lelewski, P.E.

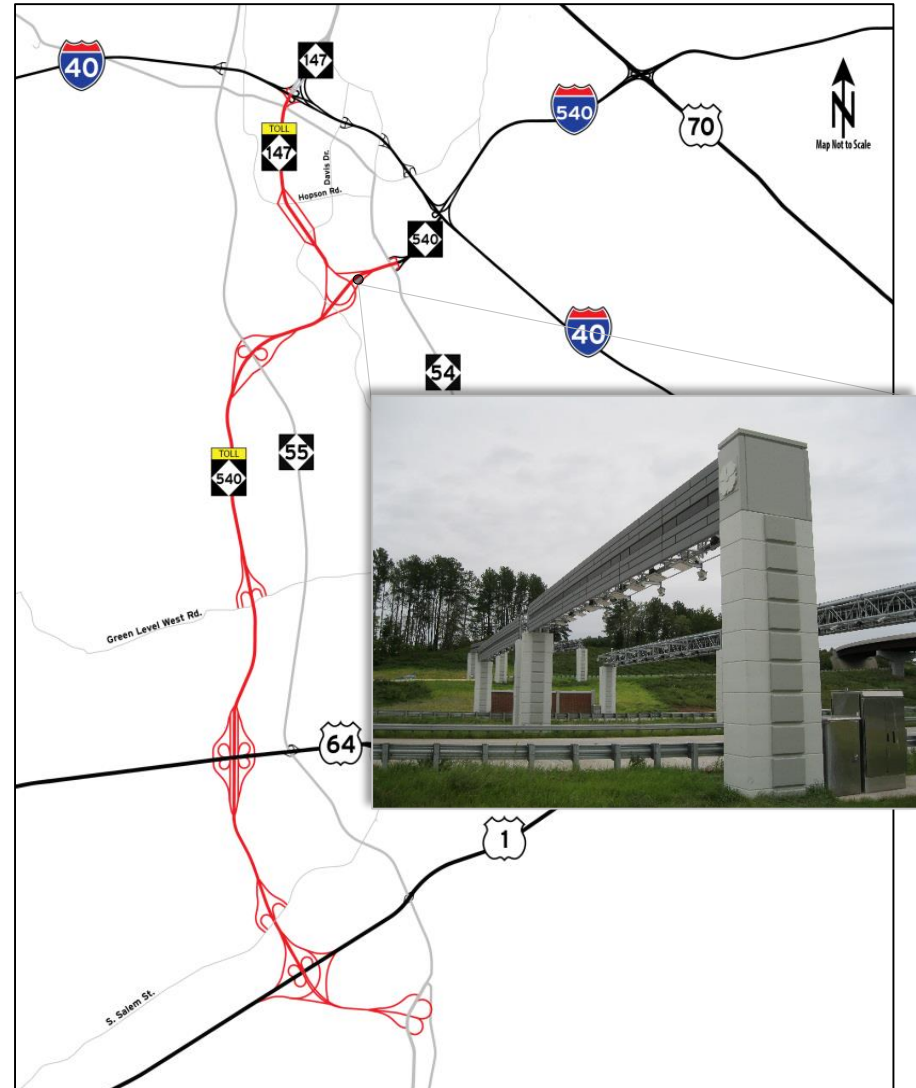


# Agenda

1. Overview of Triangle Expressway Program
2. Lessons Learned to Date
3. Concept of Operations for New Program
4. Potential Solutions for Monroe Expressway
5. Program Implementation

# Overview of Triangle Expressway Program

- All-electronic tolling facility
- Average Weekday Traffic = 49,800 (AWT) at busiest section
- 18 toll zones
  - All equipped to detect wrong-way drivers
  - Uses roadside tolling system
- Average of 3 wrong-way drivers detected monthly
- No wrong-way driving crash since opening

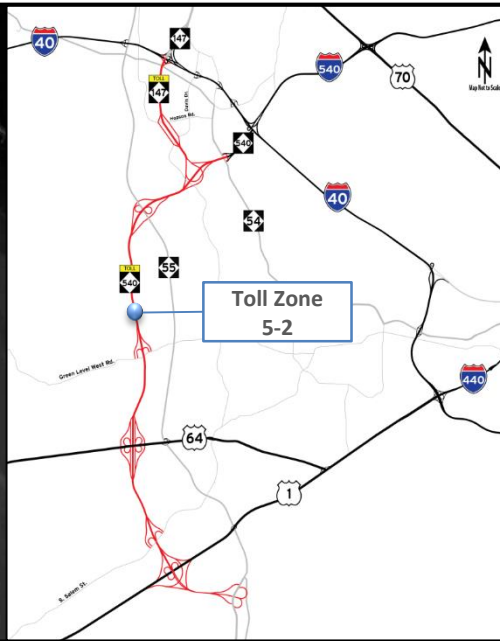


# Overview of Triangle Expressway Program

- Wrong-Way Driver Recorded on Triangle Expressway
- Detected at toll zone 5-2
  - Toll NC-540 Southbound
  - North of Green Level West interchange
- Point of origin Green Level West interchange

Right Way

T18 - 5.2 - 4 - 3 - 2 - 1 - 0  
Wednesday, January 04, 2017 05:33:07



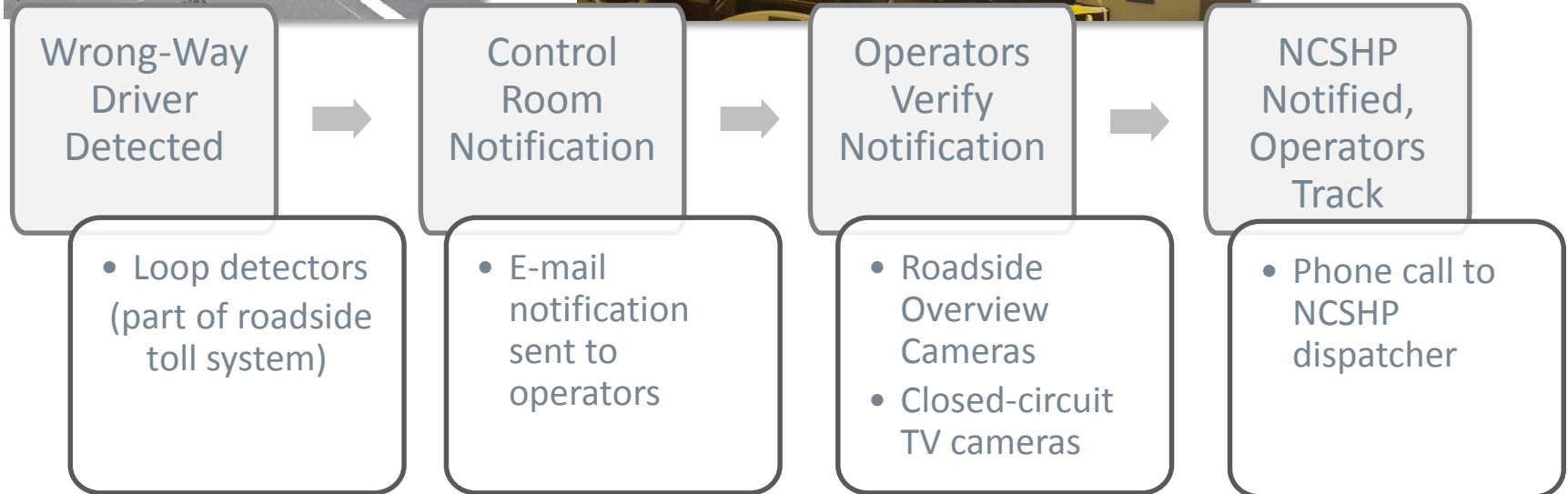
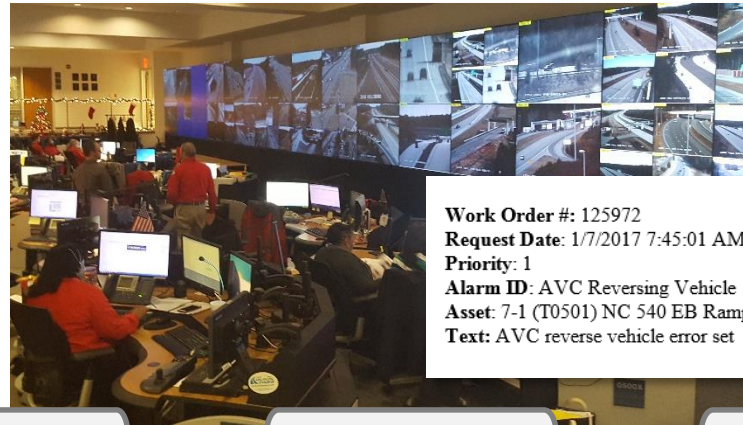
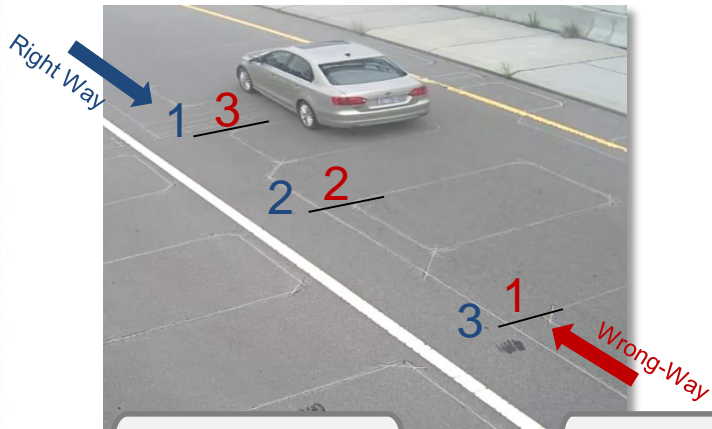
Wrong-Way

T18 - 5.2 - 4 - 3 - 2 - 1 - 0  
Wednesday, January 04, 2017 05:35:11





# Overview of Triangle Expressway Program



## Lessons Learned to Date

- Notification time
  - 90+ seconds for control room notification email to arrive
- Notification sources
  - Tolling and ITS networks are not integrated
  - Notification source is limited to e-mail only
- Manual verification required
  - No visual data in initial notification

# Concept of Operations for New Program

- Currently in draft form
- Scan for national trends in wrong-way driver detection
- Recommend solutions
- Develop a deployment methodology and schedule
- Detail operations and maintenance plans





# Concept of Operations for New Program

## Central Florida Expressway Authority

- Radar detectors on ramps
- Flashing red beacons on signs
- Cameras record vehicles traveling wrong way

## Miami-Dade Expressway Authority (MDX)

- Microwave radar detectors on ramps
- Inductive loop detectors on ramps

## Florida's Turnpike Enterprise

- Dual radar detectors and high quality cameras on ramps
- High definition radar detectors on mainline
- IDRIS smart loops on reversible lanes



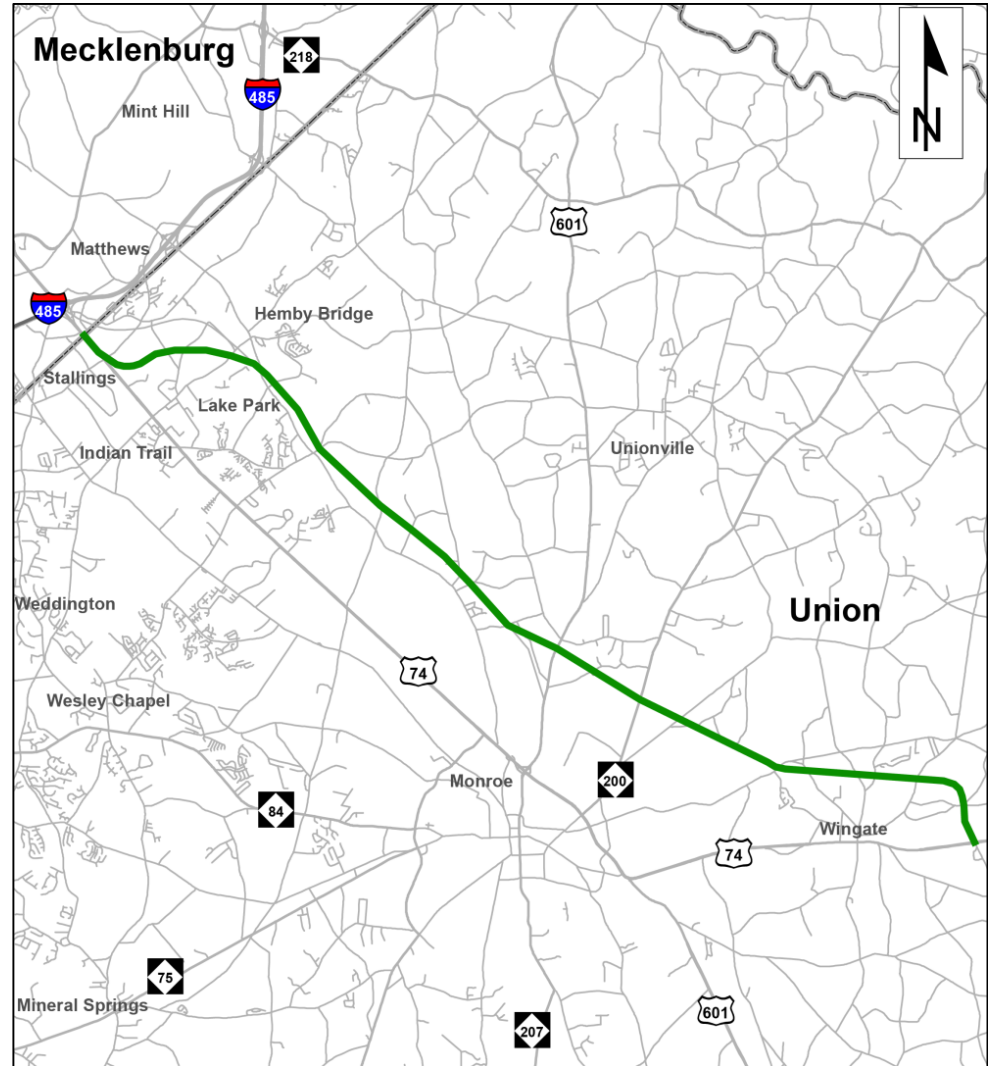
# Concept of Operations for New Program

- Proposes typical solution
- Provides solution that can be scalable to any location
- Can apply to all situations: ramps, mainlines, express lane direct connects, express lane gate control systems
- Primary focus is for Monroe Expressway
  - Desire to implement before completion



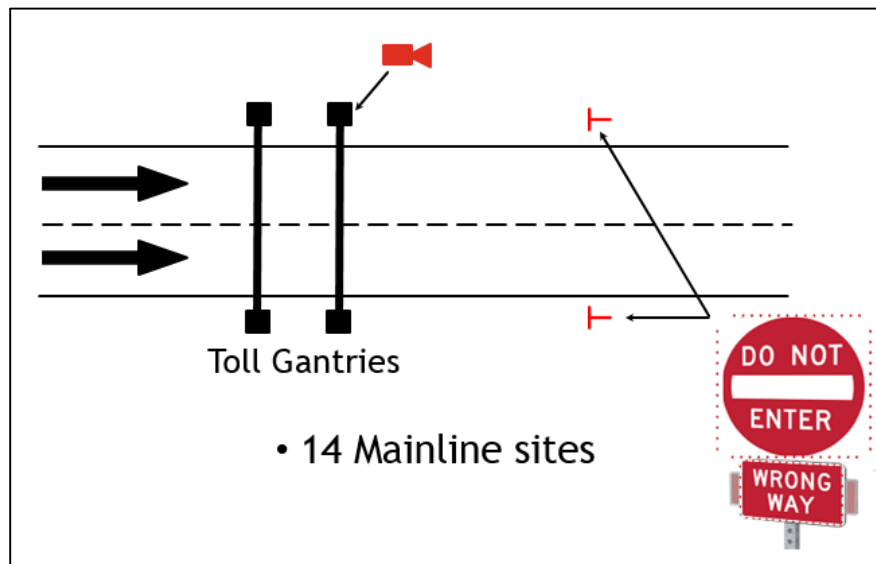
# Potential Solutions for Monroe Expressway

- Similar greenfield project to Triangle Expressway
- All-electronic tolling facility
- 19.8 miles long
- 14 mainline toll zones
  - Currently set up to detect wrong-way drivers with roadside toll system

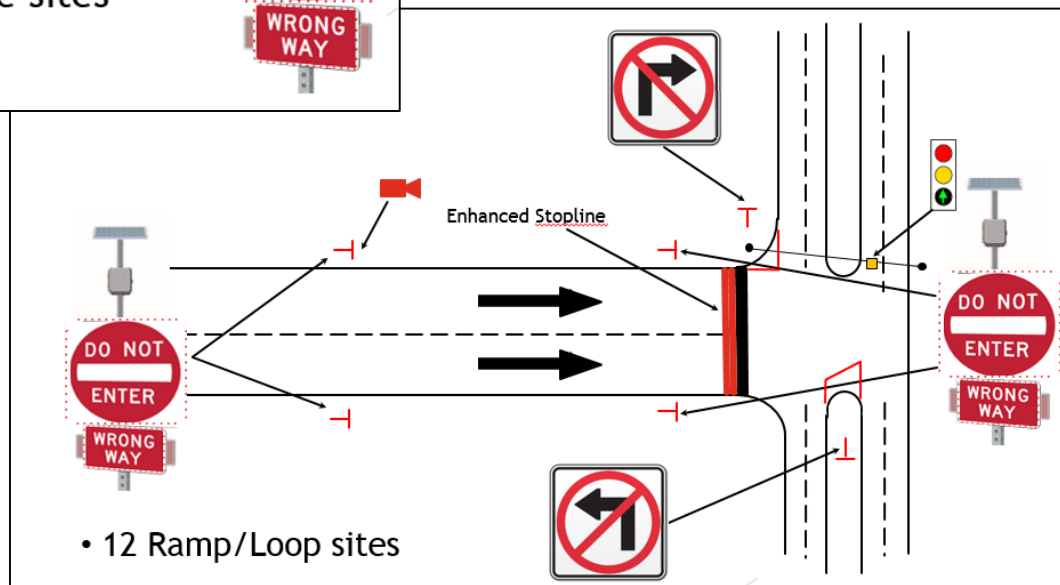




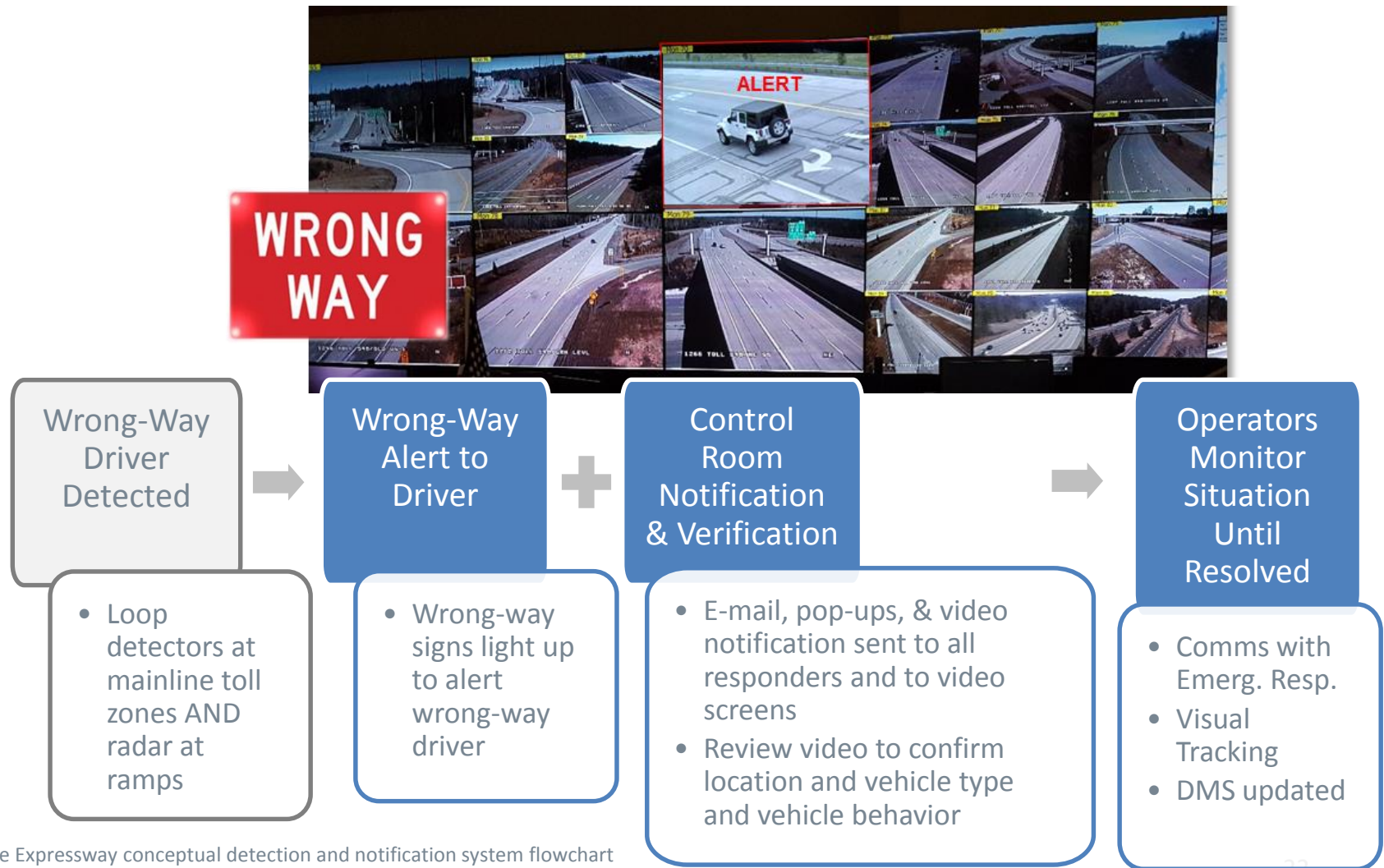
# Potential Solutions for Monroe Expressway



## Mainline & Ramp Treatments



# Potential Solutions for Monroe Expressway



# Program Implementation

- 1) In process of selecting test sites on Triangle Expressway based on wrong-way driving data
- 2) Proceed with design of program for Monroe Expressway in parallel
- 3) Procure and deploy Triangle Expressway test sites in 2017
- 4) Take lessons learned and revise Monroe Expressway and Triangle Expressway plans/program
- 5) Deploy Monroe Expressway program in 2018
- 6) Deploy Triangle Expressway (entire) and Complete 540 program in 2019-21



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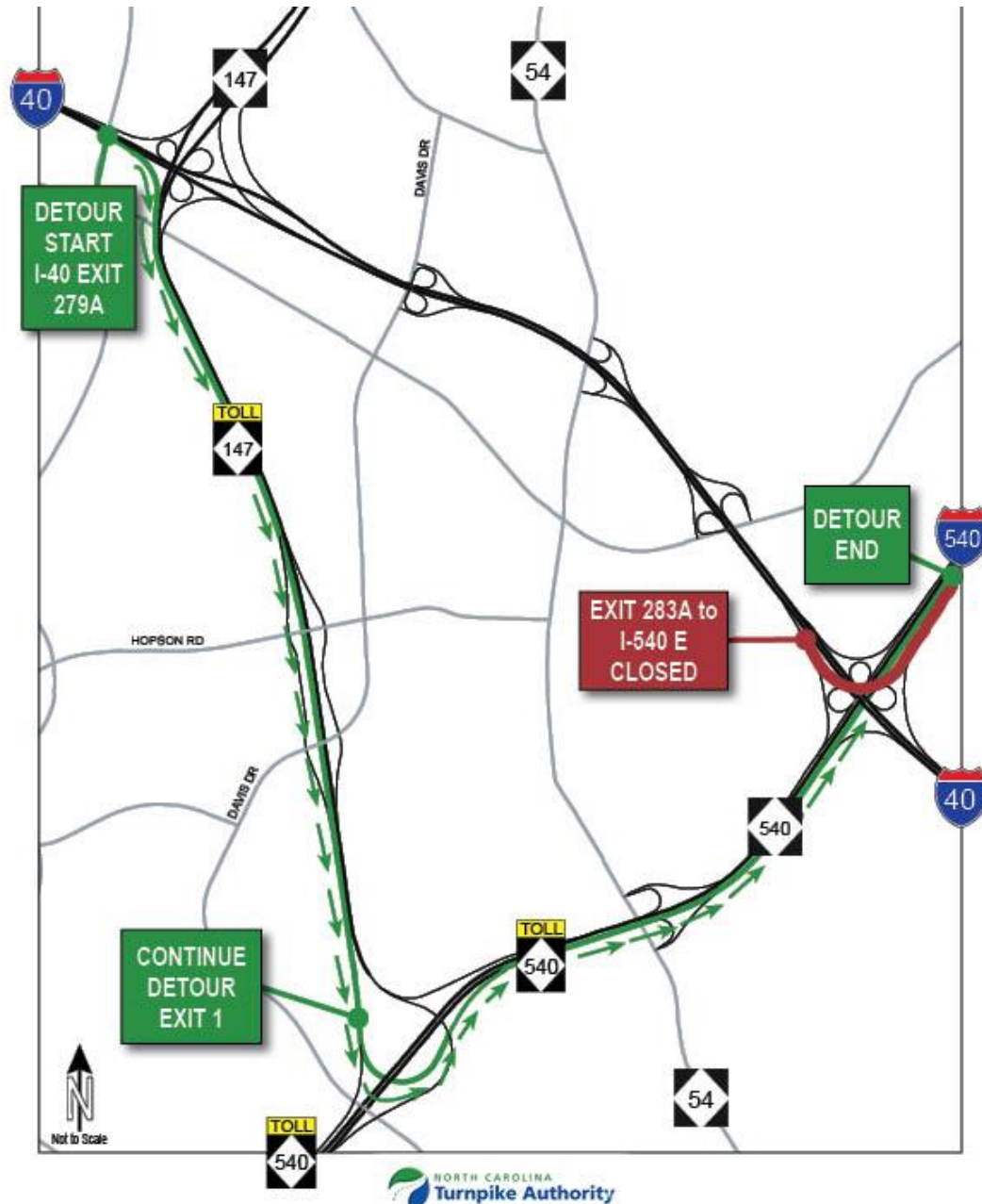
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# Triangle Expressway / NC 147 Detour Route Review

Andy Lelewski, P.E.





Detour in effect  
June 30, 10:00 PM  
to  
July 5, 7:00 AM



Thank You